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Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

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Job No.: CTCE/BBMP/W.No.08/KRIDL/SDBC/AGG/2014-15 18.07.2014

Aggregate Gradation Test

IS : 2386 Part I

Client	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager,** KRIDL, Bangalore.
Name of the Work	Improvements to roads and drains at T. Ramaiah Layout in Ward No. 08, BBMP, Bangalore.
Reference	AEE/KH/437/2014-15 Dated: 03.06.2014
Sample I / D	Hot Mix Plant, Bangalore
Type of Mix	Semi Dense Bituminous Concrete (SDBC)
Date of Testing	18.07.2014

Total Weight of Sample: **5600** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Grade-II As per MORTH	Remarks
13.2	0	0.0	0	100	100	Gradation satisfies Grade-II MORTH specification
9.5	483	8.6	8.63	91.38	90-100	
4.75	2867	51.2	59.82	40.18	35-51	
2.36	724	12.9	72.75	27.25	24-39	
1.18	472	8.4	81.18	18.82	15-30	
0.3	365	6.5	87.70	12.30	9-19	
0.075	415	7.4	95.11	4.89	3-8	

Total Weight of Sample: **5550** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Grade-II As per MORTH	Remarks
13.2	0	0.0	0	100	100	Gradation satisfies Grade-II MORTH specification
9.5	465	8.4	8.38	91.62	90-100	
4.75	2837	51.1	59.50	40.50	35-51	
2.36	763	13.7	73.24	26.76	24-39	
1.18	438	7.9	81.14	18.86	15-30	
0.3	345	6.2	87.35	12.65	9-19	
0.075	402	7.2	94.59	5.41	3-8	

Note:

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Job No.: CTCE/BBMP/W.No.08/KRIDL/SDBC/Shape_T/2014-15 16.07.2014

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager,** KRIDL, Bangalore.
Name of Work	Improvements to roads and drains at T. Ramaiah Layout in Ward No. 08, BBMP, Bangalore.
Reference	AEE/KH/437/2014-15 Dated: 03.06.2014
Technical Reference	IS 2386(Part 1) 1963 (RA 2007)
Type of Mix	Semi Dense Bituminous Concrete
Date of Testing	16.07.2014

Result : Flakiness Index = **11.12%**

Elongation Index = **13.32%**

Result : Combined Flakiness & Elongation index **24.44%**

Comments:

→ Maximum allowable Flakiness & Elongation Index for Semi Dense Bituminous Concrete is 30%

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Aggregate Impact Value

IS: 2386 Part IV

Client	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager,** KRIDL, Bangalore.
Name of the Work	Improvements to roads and drains at T. Ramaiah Layout in Ward No. 08, BBMP, Bangalore.
Reference	AEE/KH/437/2014-15 Dated: 03.06.2014
Source / Location	Hot Mix Plant, Bangalore
Type of Mix	Semi Dense Bituminous Concrete
Date of Testing	16.07.2014

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	382	385	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	82	84	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	300	301	
4	Aggregate Impact value = percent fines 100* (W_2/W_1)%	21.47	21.82	21.64

Comments:

→ Maximum allowable Aggregate Impact value for Semi Dense Bituminous Concrete is 27%

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DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager,** KRIDL, Bangalore.
Name of Work	Improvements to roads and drains at T. Ramaiah Layout in Ward No. 08, BBMP, Bangalore.
Reference	AEE/KH/437/2014-15 Dated: 03.06.2014
Technical Reference	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Wet Mix Macadam
Date of Testing	19.06.2014

Result : Flakiness Index = **11.27%**

Elongation Index = **13.56%**

Result : Combined Flakiness & Elongation index **24.83%**

Comments:

→ Maximum allowable Flakinee & Elongation Index for Wet Mix Macadam is 30%

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Aggregate Impact Value

IS: 2386 Part IV

Client	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager,** KRIDL, Bangalore.
Name of the Work	Improvements to roads and drains at T. Ramaiah Layout in Ward No. 08, BBMP, Bangalore.
Reference	AEE/KH/437/2014-15 Dated: 03.06.2014
Source / Location	WMM Plant
Type of Mix	Wet Mix macadam
Date of Testing	19.06.2014

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	377	379	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	77	79	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	300	300	
4	Aggregate Impact value = percent fines	20.42	20.84	
	100* (W_2/W_1)%			20.63

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%

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Job No.: CTCE/BBMP/W.No.08/KRIDL/WMM/Gradation/2014-15

19.06.2014

GRADATION FOR WMM
MORTH TABLE-400-11

Client : **Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.

Agency : **Technical Manager,** KRIDL, Bangalore.

Name of Work : Improvements to roads and drains at T. Ramaiah Layout in Ward No. 08, BBMP, Bangalore.

Reference : AEE/KH/437/2014-15 Dated: 03.06.2014

Date of Testing : 19.06.2014

Material : WMM

Sample Location : WMM Mix Plant

Oven Dry Wt (gm): **7115**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	225	225	3.2	96.8	95-100
22.4	2430	2655	37.3	62.7	60-80
11.2	1415	4070	57.2	42.8	40-60
4.75	735	4805	67.5	32.5	25-40
2.36	920	5725	80.5	19.5	15-30
0.600	545	6270	88.1	11.9	8-22
0.075	465	6735	94.7	5.3	0-8

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04.07.2014

TEST REPORT ON CONCRETE CUBES

Client	: **Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
Agency	: **Technical Manager,** KRIDL, Bangalore.
Name of the work	: Improvements to roads and drains at Tatanagar in Ward No. 08, BBMP, Bangalore.
Reference	: AEE/KH/436/2013-14 Dated: 25.03.2014
Sample ID	: Cement Concrete
Size of cubes	: 150mmx150mmx150mm
Cross Sectional Area	: 22500 mm^2
Technical Reference	: IS: 516-1959 (Reaffirmed 2008)
Grade of Concrete	: M_{15}
Compressive Strength as on	: 28^{th} day

Sl.No.	Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	06.06.2014	04.07.2014	8.145	369.5	16.42
2	06.06.2014	04.07.2014	8.267	384.2	17.08
3	06.06.2014	04.07.2014	8.356	396.7	17.63

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TEST REPORT ON COARSE AGGREGATES
IS 383-1970 (RA- 2002)

Client : **Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.

Agency : **Technical Manager,** KRIDL, Bangalore.

Name of Work : Improvements to roads and drains at T. Ramaiah Layout in Ward No. 08, BBMP, Bangalore.

Reference : AEE/KH/437/2014-15 Dated: 03.06.2014

Date of Testing : 04.06.2014

Material : 40mm Aggregates

Total Wt. of Aggregates in gms **25200**

Is Sieve Size in mm	Weight Retained (gm)	Retained Weight in %	Cumulative Retained Weight in %	Cumulative Weight Passing in %	Spec.Limits
80	0	0	0	100	100
40	952	3.78	3.78	96.22	95-100
20	14865	58.99	62.77	37.23	30-70
10	5687	22.57	85.33	14.67	10-35
4.75	3215	12.76	98.09	1.91	0-5

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